

Response to Official Action

Dated 9 April 2007

Re: USSN 10/693,679

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## **REMARKS/ARGUMENTS**

The claims have been amended to improve their clarity by removing the reference to "one or more" structured descriptions. As is clear from the specification, if that change is to occur between structured descriptions which are transformed by the concept list (as claimed in claim 1, it clearly must be more than one structured description. Alternatively, if matching is to occur between the concept list and a structured description alone, as recited in claim 6, then there need only be one single structured description.

It is believed, that with the foregoing explanation, the amendments effected to the presence of the claims will be clearly understood.

The Examiner has advised that a second Official Action issued with respect to the corresponding European application to which the present application claims priority, and a copy of that Official Action is enclosed herewith for that Examiner's information. An IDS citing this second official action as well as the newly cited art was recently filed.

Turning to Chen cited by the Examiner, Chen relates to methods for actually providing the search result itself and not to the preliminary step of claim 1, for example, when the detected content is used to specify a list of context data (the recited concept list) which is then used to reduce the structured descriptions.

The pruned tree structure of Chen represents a solution or result of the user's search whereas the concept list of claim 1, for example, represents the context-dependent input data set which is then used to transform (reduce) the structured description.

Moreover, exactly what in Chen is supposed to anticipate the "structured descriptions" limitation? Additionally, with respect to the limitation "using the concept list to transform the structured descriptions into reduced structured

descriptions" the Examiner points the applicant to column 3, lines 3-15 of Chen. But at that point there is a discussion of using "predefined user views for augmenting the search criteria". How does any of this have any relevance to the quoted limitation? It is respectfully noted that the limitation "using the concept list to transform the structured descriptions into reduced structured descriptions" is simply not taught by this passage.

As such, it is respectfully submitted that claim 1 is not anticipated by Chen.

With respect to the other independent claims, claim 6 includes basically the same limitation, viz., "using the concept list to transform the structured descriptions into a reduced structured description" which is simply not taught by the cited passage.

As to the other independent claims that were rejected because they allegedly include similar limitations to claim 1. But since the rejection of claim 1 is not proper, then the rejections of these claims must fall as well.

Withdrawal of the rejections and allowance of the claims are respectfully requested.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 08-2025.

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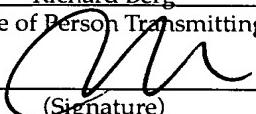
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July 31, 2007

(Date of Transmission)

Richard Berg

(Name of Person Transmitting)



(Signature)

July 31, 2007

(Date)

Respectfully submitted,



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Enclosure:

Copy of a response dated 11 August 2005 filed in the corresponding EP application (and cited by the EP Examiner in the 8 May 2007 Official Communication cited in the abpve-mentioned IDS).



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*CONFIRMATION*

11 August, 2005

Dear Sirs,

**European Patent Application No.: 02 354 165.9**

**Room:** 1527  
**Hewlett Packard Company**  
**Our ref:** 500111540-1 EP

We refer to the Communication under Article 96(2) EPC dated 7 April 2005 and enclose amended claims pages 20-22 and amended description pages 2 and 3 to replace those presently on file.

The claims have been amended to improve their clarity by removing the reference to "one or more" structured descriptions. As is clear from the specification, if matching is to occur between structured descriptions which are transformed by the concept list (as in claim 1), there clearly must be more than one structured description. Alternatively, if matching is to occur between the concept list and a structured description alone (as in claim 4), there may be only a single structured description.

Basis for this amendment can be found throughout the specification, in particular page 9, line 20 to page 10, line 23 and page 16, lines 12 to 16 with reference to Figure 9 which describes the generalized embodiment and page 13, line 25 to page 14 line 9 which describes matching a the concept list with a single structured description. It is therefore submitted that no new matter has been introduced in contravention of Article 123(2) EPC.

Claim 2 has been amended to be dependant on claim 1. Claim 13 has been amended to refer to "A *computer* system as claimed in claim 12...". Claim 14 has been deleted.

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Referring to item 2 of the Examination Report, the Applicant submits that the multiple dependant claims in a single category, namely 1 and 6 do not offend Rule 29(2)(a)(b)(c) EPC. Claims 1 and 6 present different inventive uses of the method and fall into the exception specified in Rule 29(2)(b) EPC. Specifically, claim 6 relates to a method of simplifying a structured description including the step of matching a detected context to a concept list appropriate to that context and using the concept list to transform (reduce) a structured description. Claim 1 relates to the overall method of matching one or more structured descriptions including the steps of matching the reduced structured descriptions and providing an output representing the matching between those descriptions. It is submitted that it would be inappropriate to recast the claims as dependant since they are intended to cover different applications of the invention and such amendment would result in a reduction of clarity in the claim scope.

D1 discloses a method for organizing documents for search and retrieval using context-sensitive searching techniques such as user-defined views and predefined topics.

“User-defined views” is not explained clearly in D1 but is described as being a “context-sensitive query” (column 8, line 53) which augments a users search criteria based on context (column 3, lines 3 to 7). In one example, this is achieved by using information directly to constrain the search terms. However, there is no specific and clear disclosure of how this is achieved in practice and appears to be limited to restricting keyword searching as a function of user predefined preferences or user-entered data.

Predefined topics are described in D1 as being with reference to a set of associated keywords and phrases wherein the determination as to whether a document is relevant to a particular topic is based on a weighting procedure depending on the frequency of words in the document (column 5, lines 19 to 24).

D1 does not disclose the step of matching a detected context to a concept list appropriate to that context and using that list to transform/reduce structured descriptions and then matching the reduced structured descriptions to output information representing the matching.



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With reference to paragraph 3.1 of the Examination Report and step (b) of claim 6, the use of predefined topics or user-defined views does not disclose a concept list or the use of a concept list. The passages cited by the Examiner relate to "user-defined views" and "topics". However, this part of disclosure relates to methods for actually providing the search result itself and not the preliminary step of claim 1 or 6 whereby the detected context is used to specify a list of context data (the concept list) which is then used to reduce the structured descriptions.

To this end the pruned "tree structure" of D1 represents the solution or result of the users search whereas the concept list in claims 1 and 6 represents the context-dependant input data set which is then used to transform (reduce) the structured description.

Referring to the Examiners comments in relation to step (c) of claim 6, D1 does not disclose using a concept list to transform (reduce) a structured description. The passage referred to by the Examiner (column 10, line 5-9) describes providing context-sensitive search queries that are themselves transformed into the vocabulary used in the predefined topics and topic hierarchies. A concept list is not the same as a context-sensitive user query. It is a list of concept-dependant data relevant to the particular detected context and can be seen as a 'seed' data set which is used to reduce the structured description by matching (claim 1, step c.). Following this process the reduced structured descriptions are processed to provide an output representing the matching between reduced descriptions (claim 1, steps d and e).

Referring to paragraph 3.2 of the Examination Report, the passage in D1 referred to by the Examiner describes the well known use of Boolean combinations of search terms to refine a search result. However, this is not the same as matching the reduced structured descriptions. The matching step of claim 1 identifies terms which are present in both pruned/reduced structured descriptions. Then a list of the terms which the structured descriptions have in common is generated, thus representing the matching between the structured descriptions. For example, the description at pages 14 and 15 illustrates matching terms in a request keyword list and a context keyword list. The output is a reduced list of common keywords (see table 3)

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with an associated 'pruned' tree list (table 4). In contrast a Boolean operation identifies documents that, in the case of an AND operation, contain all of the terms/expressions which are of interest to the user.

In view of the comments and explanation above, it is therefore submitted that the invention as claimed is novel over D1.

Furthermore, it is submitted that the invention is not obvious in view of D1. D1 is concerned with using sets of predefined topics to limit the number of documents relevant to the users topics of interest and a process for modifying search keywords *per se* to reflect the users context. The invention is concerned with how to match structured descriptions in a way which takes into account the context of a user. The step between D1 and the invention is the use of a concept list appropriate to the detected user context to reduce the scope of one or more structured descriptions either by matching elements of the concept list directly with elements of a structured description, or by using the concept list to reduce the scope of a plurality of structured descriptions and then identifying terms which the reduced descriptions have in common. This provides the advantage of 'passively' limiting the information to which a user is exposed without the user needing to consider whether or how to limit the scope of a search based on his or her context or make selections from a structured tree-type list of information in order to reduce the scope of available material (as is required by D1). There is nothing whatsoever in D1 which hints or alludes to the use of predetermined concept lists appropriate to the detected context or a matching process which identifies information which the concept list and/or a plurality of descriptions have in common. It is therefore submitted that the invention is not obvious in view of D1

It is believed that the substantive issues relating to the present application have now been dealt with. However, if the Examiner nevertheless believes that there are any problems outstanding, it is requested that these might be dealt with by telephone to Richard Lloyd EPA on telephone number +33 47614 4897.

The Applicant hereby reserves the right to reintroduce any subject matter deleted by this response, either in this application or in one or more divisional applications.

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Additionally, as a precautionary measure, oral proceedings are requested in the event that the Examining Division issues a decision that is adverse to the applicant.

Yours faithfully

A handwritten signature in black ink, appearing to read "Daniel Lohr".

13331 Hewlett-Packard Limited  
12133 Hewlett-Packard Company  
46934 Hewlett-Packard Development Company

physical location, activity and considerations of hardware limitations. This last aspect is likely to be particularly important where resources are to be delivered to a PDA or similar hybrid devices which have only limited screen real estate.

One solution to this problem has been to develop systems which provide subsets of web resources which are tailored to the users requirements or context. In the web context, this has been done using a variety of methods including user profiles and similar. In the general case, these techniques have involved developing detailed concept structures appropriate to the user and attempting to search for relevant resources based on that user data.

For example, a user searching for a travel booking may need to enter detailed information which is then lexically matched with all available resources. The user must then make further selections. This procedure is based on an inherent concept tree reflecting the structure of both the users data and the resource data which is not capable of articulation to the matching system. Usability and degree of complexity can be a limiting factor in such a resource matching process. For applications such as these to be effective, it is necessary to develop a paradigm for simplify the concept matching process.

It is therefore an object of the present invention to provide a new and improved method and system for concept tree matching which is adapted to the users context.

It is an object to do this particularly in the context of resources matching. It is a further object of the invention to provide a method of filtering resources in response to context detection and based on structured constraints imposed by the user.

#### Disclosure of the Invention

In one aspect the invention provides a method of matching structured descriptions including the steps of:

- detecting a context reflecting an environment in which the matching is to occur;

- matching the detected context to a concept list appropriate to the detected context;
  - using the concept list to transform the structured descriptions into reduced structured descriptions;
- 5            - matching the reduced structured descriptions; and
- providing an output representing the matching between the structured descriptions.

The concept list preferably corresponds to a structured list of concepts and keywords related to a specified context.

10          In an alternative embodiment, the descriptions are reduced by matching keywords in the structured descriptions with keywords in the concept list and the removing any unmatched keyword concepts from the corresponding structured description.

15          Preferably the context determination is based on measurement of a physical location in which the matching is to occur, direct reception of data indicating the context or statistical analysis of characteristics of the environment in which the matching is to occur.

In an alternative aspect, the invention provides a method of simplifying a structured description including the steps of:

- 20
- detecting a context reflecting an environment in which the simplification is to occur;
  - matching the detected context to a concept list appropriate to the detected context;
  - using the concept list to transform the one or more structured descriptions into reduced structured descriptions.

**CLAIMS**

1. A method of matching structured descriptions, the method including the steps of:
  - a. detecting a context reflecting an environment in which the matching is to occur;
  - 5 b. matching the detected context to a concept list appropriate to the detected context;
  - c. using the concept list to transform the structured descriptions into reduced structured descriptions;
  - d. matching the reduced structured descriptions; and
  - 10 e. providing an output representing the matching between the structured descriptions.
2. A method of matching structured descriptions as claimed in claim 1, wherein steps b and c correspond to: using the detected context to transform structured descriptions into reduced structured descriptions.
- 15 3. A method as claimed in claim 1 or 2 wherein the concept list corresponds to a structured list of concepts and keywords related to a specified context.
4. A method as claimed in claim 1 or 3 wherein the structured descriptions are reduced by matching keywords in the structured descriptions with keywords in the concept list and the removing any unmatched keyword concepts from the corresponding structured description.
- 20 5. A method as claimed in any preceding claim wherein the context determination is based on measurement of a physical location in which the matching is to occur, direct

reception of data indicating the context or statistical analysis of characteristics of the environment in which the matching is to occur.

6. A method of simplifying a structured description including the steps of:

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- a. detecting a context reflecting an environment in which the simplification is to occur;
- b. matching the detected context to a concept list appropriate to the detected context;
- c. using the concept list to transform the one or more structured descriptions into reduced structured descriptions.

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7. A method as claimed in claim 6 wherein the concept list corresponds to a structured list of concepts and keywords related to a specified context.

8. A method as claimed in claim 7 wherein the structured descriptions is reduced by matching keywords in the structured descriptions with keywords in the concept list and the removing any unmatched keyword concepts from the corresponding structured description.

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9. A method as claimed in claim 7 wherein the transformation process preserves relevant hierarchical structure in the structured description by pruning the keyword tree to remove unmatched keywords while preserving the remaining structure of the description.

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10. A method as claimed in either claim 1 or 6 wherein the structured descriptions and the concept list are defined according to dissimilar ontologies, the method further including the steps of converting the structured descriptions and the concept list to a common ontology prior to matching or reduction of the structured descriptions.

11. A method as claimed in either claim 2 wherein the structured descriptions are defined according to dissimilar ontologies, the method further including the steps of converting the structured descriptions to a common ontology prior to matching or reduction of the structured descriptions.

5       12. A computer system adapted to carry out the method as claimed in any of claims 1 to 11.

13. A computer system as claimed in claim 12 including:

a. means for detecting a context or receiving a detected context, reflecting an environment in which the matching is to occur;

10      b. matching means adapted to match the detected context to a concept list appropriate to the detected context stored in a context database;

c. an edit engine adapted to use the concept list to transform the structured descriptions into reduced structured descriptions;

d. matching means adapted to match the reduced structured descriptions; and

15      e. output means adapted to provide an output representing the matching between the structured descriptions.

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**Eingerelichte Unterlagen**

**Items filed**

**Pièces envoyées**

Anmeldungs- (und Direktions-*) Nr./Patent Nr. Application (and Directorate*) No./Patent No. Nº de la demande (et de la direction)*Nº du brevet	Ihr Zeichen. Your reference Votre référence  500111540-1	ggfs. Art und Datum der Unterlagen** Nature and date of items (optional)** Nature et date des pièces (facultatif)**
1 02354165.9 Room 1527		Response to Office Action dated
2		7 April 2005
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